

Design and Technology Long Term Planning



Fields Multi Academy Trust

In EYFS, Design and Technology is taught through the strand Expressive Arts and Design but complements all of the other six areas of learning. In Nursery, through our continuous provision, children use various construction materials in order to build, construct and stack. They make enclosures and create spaces. Tools are introduced as part of child-initiated play to begin to create with a purpose. In Reception these skills are further developed. During child-initiated play, children are guided through careful questioning and modelling to create a purpose in mind. They are taught to handle tools carefully, with increasing control and to create specific effects. With support, children select tools and techniques needed and they learn to adapt their work where necessary. Our enhanced provision, provides additional opportunities to look at new tools, materials and skills.

EYFS

Year one of the rolling programme for Design and Technology in EYFS		
Autumn Term	Spring Term	Summer Term
<p>Structures – Journeys</p> <p>The children will make imaginative and complex ‘small worlds’ with blocks and construction kits to show where we live and journeys that we make.</p> <p>They will create small worlds to recreate maps of real and imaginative journeys. Through adult modelling children will learn different ways to join different materials together to create models of vehicles, bridges and structures relating to our journeys. They will be encouraged to use demanding materials, including fabric, card, foil, plastic, wood to make boats and other vehicles and will relate to science work to test materials. Children will be exploring structures on different scales.</p>	<p>Structures - Traditional Tales and People who help us</p> <p>The children will design and construct a home for the 3 little pigs and a stable beanstalk for a plant to grow. The children will replicate structures with materials and components, build and construct with a wide range of objects and sizes, learn how everyday objects work, start to build structures, joining components together and to learn how to use a range of tools, e.g. scissors, hole punch, stapler etc. They will be encouraged to create collaboratively and return and build upon previous learning. To explore our topic on traditional tales and people who help us children will create structures and puppets. They will develop skills of fold, cut and join card and paper.</p>	<p>Mechanisms – Toys</p> <p>The children will deconstruct toys to explore their structure and materials used. This is related to our work in Science. We will explore how things work and talk about the forces that we feel when for example we make a toy car move or a puppet go up and down. During playdough and clay play children will see how malleable materials can be used to design and make. During our small parts play children will be joining and linking using nuts and bolts, axels and elastic bands. During outdoor learning children will explore the use of natural phenomena such as wind and shadows in toys.</p> <p>Food – Growing</p> <p>Through our topic on growing children will taste different foods that have been grown and learn about safe use of tools and equipment to prepare them for cooking and eating.</p>

Year two of the rolling programme for Design and Technology in EYFS		
Autumn Term	Spring Term	Summer Term
<p>Textiles - Homes and Family</p> <p>Children will explore and name materials found in our home and explore why we use them for certain functions in our homes. They will explore early needle skills through fine motor skills development – threading beads, weaving paper and fabric.</p> <p>During child-initiated play children will explore textiles and their properties for den making and structures and explore ways to join and construct using fabrics and clothes pegs.</p>	<p>Food - Our Planet and Plants</p> <p>Through an exploration of different countries, habitats and climates, children will prepare and taste different foods. In relation to Geography LTP children will try new foods from around the world. Through this preparation, children will develop safe use of tools, including knives for cutting and peeling and develop vocabulary to describe tastes. Children will develop skills to mould and shape malleable materials such as bread dough.</p>	<p>Mechanisms and Structures – Water</p> <p>Children will explore ways to make water move through pulleys, pipes and guttering. They will explore structures that can float on water or can carry water. They will look at key materials and how they are used in structures – related to science vocabulary of waterproof. Challenge will increase to provide opportunities to work with different thickness of card, plastic and fabric.</p>

Key Stage 1

Year one of the rolling programme for Design and Technology in Key Stage 1		
Autumn Term	Spring Term	Summer Term
<p>Textiles – Fabulous Fabrics</p> <p>The children will focus on fascinating designs, patterns and weaving. They will create their own unique patchwork square which we will join together to create a Kente cloth. This will involve looking at the different ways of fabric weaving. The children will then decorate with a range of items (buttons, sequins, bead etc.) thinking about how to secure them effectively.</p>	<p>Mechanisms – Grand Designs</p> <p>The children will recognise how multiple shapes (2D and 3D) are combined to form a strong and stable structure. They will use this knowledge to design a castle with key features which satisfy a given purpose. They will construct 3D nets using glue and tape to securely assemble geometric shapes.</p>	<p>Food – A Honey Treat!</p> <p>The children will understand that all food comes from plants or animals. They will name and sort foods into the five groups in the Eatwell Guide. They will use what they know about the Eatwell Guide to design and prepare a dessert featuring honey linked to their learning about bees.</p>

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<p>Mechanisms – Moving Vehicles Linked to their study of transport, the children will be creating their own vehicle out of recycled items from home. They will explore and use mechanisms, use a variety of materials and tools safely and effectively to create a vehicle using wheels and axles to make it travel a distance. The children will generate, develop, model and communicate their ideas through talking and drawing.</p>	<p>Food – Bread for the King! Inspired by their learning of The Great Fire of London, the children will bake bread. They will begin to select from a range of hand tools and equipment to peel, cut, grate, mix and mould foods. They will begin to understand that ingredients have to be grown. They will present their bread to King Charles II for tasting!</p>	<p>Structures – A Beacon for the Sea The children will build structures exploring how they can be made stronger, stiffer and more stable. They will talk about and start to understand the simple working characteristics of materials and components. With help, the children will measure, mark out, cut, shape and score materials with some accuracy. Finally, they will assemble, join and combine materials or components.</p>

Lower Key Stage 2

Year one of the rolling programme for Design and Technology in Lower Key Stage 2		
Autumn Term	Spring Term	Summer Term
<p>Food – A Gastronomic Delight The children will research Indian recipes and spices. They will begin to think about dietary requirements and factor in dishes for vegetarians and vegans. They will use a range of techniques such as mashing, whisking, crushing, grating, cutting, kneading and baking and use a heat source to cook a curry and a side dish.</p>	<p>Structures – Viking Vessels The children will apply their understanding of how to strengthen, stiffen and reinforce more complex structures in order to create more useful characteristics of products. They will assemble, join and combine material and components with some degree of accuracy to create a Viking Longboat.</p>	<p>Electrical Systems – Volcanic Eruption The children will be making a volcano using papier mâché and paints. They will apply their understanding of how to strengthen, stiffen and reinforce more complex structures. To add extra impact, the children will use electrical systems in their products [for example, series circuits incorporating switches, bulbs, buzzers and motors]. After constructing the volcano, the children will use a mechanical system to drop the baking soda inside the volcano.</p>

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<p>Mechanical Systems – A Moving Creation</p> <p>The children will create a 'Stone Age' book or poster to showcase an aspect of their work in history. They will explain how mechanical systems such as levers and linkages create movement and use mechanical systems in their products. They will create their own prototypes of these different mechanisms using card, and split pins for the pivot.</p>	<p>Textiles – A Colourful Decade</p> <p>The children will take inspiration from their research of 1960s fashion. They will design a make an item of clothing. They will join fabrics in different ways using running stitch, over stitch or back stitch and use appropriate decoration techniques including applique. The children will begin to understand that a simple fabric shape can be used to make a 3D textile project.</p>	<p>Food and Nutrition - Seasonal Tarts</p> <p>The children will begin by looking at the seasonality of foods and where they are grown or caught. They will take their research of seasonal ingredients and plan a tart using pastry. They will prepare and cook a savoury dishes safely and hygienically using the Eatwell Guide and apply these principles when planning and cooking dishes.</p>

Upper Key Stage 2

Year one of the rolling programme for Design and Technology in Upper Key Stage 2		
Autumn Term	Spring Term	Summer Term
<p>Pulleys – The Great Space Race!</p> <p>The children will explore what pulleys and gears are and how these can be used to help move or rotate mechanisms. They will explore how mechanisms in vehicles work and how different components of pulleys can help a vehicle move. They will evaluate the way in which 'drivers and followers' can be manipulated to change the movement or action of moving parts. The children will utilise their knowledge to design then create a 'moon vehicle' that could traverse the surface of the moon.</p>	<p>Textiles (computer aided design) – Practical Footwear</p> <p>The children will appreciate the resources used by the Ancient Greek, research their sandal designs and make and evaluate an Ancient Greek-style sandal. They will use digital media to design their products using software. They will demonstrate how to measure, make a seam allowance, tape, pin, cut, shape and join fabric with precision to make a more complex product, adding fastenings</p>	<p>Food - A Seasonal Feast!</p> <p>After their research, the children will explain that foods contain different substances, such as protein, that are needed for health and be able to apply these principles when planning and preparing dishes. They will adapt and refine recipes by adding or substituting one or more seasonal ingredients to change the appearance, taste, texture and aroma. They will demonstrate how to prepare and cook a variety of predominantly savoury dishes safely and hygienically including, where appropriate, the use of a heat source to make a seasonal feast/ snack.</p>

Year two of the rolling programme for Design and Technology in Upper Key Stage 2

Autumn Term	Spring Term	Summer Term
<p>Electrical switches and circuits – Test your knowledge!</p> <p>Linked to our science unit on electrical systems, the children will explore a range of electrical board games and systems, comparing the ways in which switches, sounds and lighting are used and embedded. They will create and then design their own electrical game to test knowledge around a core area of the curriculum. Children will then evaluate their own games, and those of others, to state their effectiveness and usability.</p>	<p>Cams – Tell me a story</p> <p>Following on from their science exploration of forces, and work in LKS2 on sliders and levers, the children will explore what cams are and how these can be used to create oscillating, rotating and reciprocating movements. They will design a cam mechanism that controls a character or scene linked to their study of Egyptian Mythology.</p>	<p>Structures – A Secret Hide Away</p> <p>Taking inspiration from the topic, the children will investigate and design a bird hide. They will design and model their ideas first and then make a detailed bird hide thinking about purpose and user. The children will independently measure, fasten, secure and shape wooden parts using different tools and devices.</p>